ABSTRACT

A method of preparing beta-spodumene bodies from a plastic batch comprised entirely of minerals, absent a glass component. The resulting structure has a stoichiometry of 1:1:4 (LiO_2:Al_2O_3:SiO_2) to 1:1:11 (LiO_2:Al_2O_3:SiO_2), and exhibits a low coefficient of thermal expansion, high porosity and high strength, and is suitable for automotive catalytic converter substrates requiring a fast light-off time. There is also provided a ceramic article having a solid-solution of beta-spodumene ranging in molar ratio from 1:1:4 LiO_2-Al_2O_3-SiO_2 to 1:1:11 LiO_2-Al_2O_3-SiO_2 wherein a component selected from the group consisting of magnesium oxide (MgO), manganese oxide (MnO), and cobalt oxide (CoO) is substituted for lithium oxide (LiO_2) at 10 to 65 mole %, and optionally a minor phase of mullite ($3Al_2O_3$-$2SiO_2$) in an amount of up to 50% by weight.